GSA804-00

InGaP HBT Gain Block DIE

Product Features

- 0.01 to 4GHz
- +20 dBm P-1dB at 2GHz
- +40 dBm OIP3 at 2GHz
- 12 dB Gain at 2GHz
- 4.5 dB Noise Figure
- Internally-Matched to 50 Ω
- Available as bare die

Product Description

The GSA804-00 is a 50 Ohm matched General Purpose Gain Block Amplifier that covers the 1MHz to 4GHz frequency range with 12 dB nominal gain at 2GHz.

The GSA804-00 is a Darlington pair amplifier fabricated with high reliability InGaP/GaAs Heterojunction Bipolar Transistor (HBT) process. It only requires DC blocking capacitors, a bias stabilization resistor, Rbias, and a single RF choke for operation. The amplifier is ideal for wireless and test equipment applications.

This broadband RFIC can be used for current and next generation test equipment and wireless applications to 4GHz

Applications

- Mobile infrastructure
- ISM
- WLAN
- RFID
- Test Equipment

Specifications (1)

Parameter	Units	Min	Typ	Max
-3dB Bandwidth	MHz	0.01		6000
Test Frequency	MHz		2000	
Gain	dB	12	12.5	
Pout @ -1dB GCP	dBm		+20	
Input Return Loss	dB		15	
Output Return Loss	dB		15	
OIP3	dBm		40	
Noise Figure	dB		4.5	
Operating Current	mA		95	

1. Test conditions unless otherwise specified: 25°C, Supply Voltage = +8.00V, Rbias=11Ω, 50 Ohm System

Figure 1.

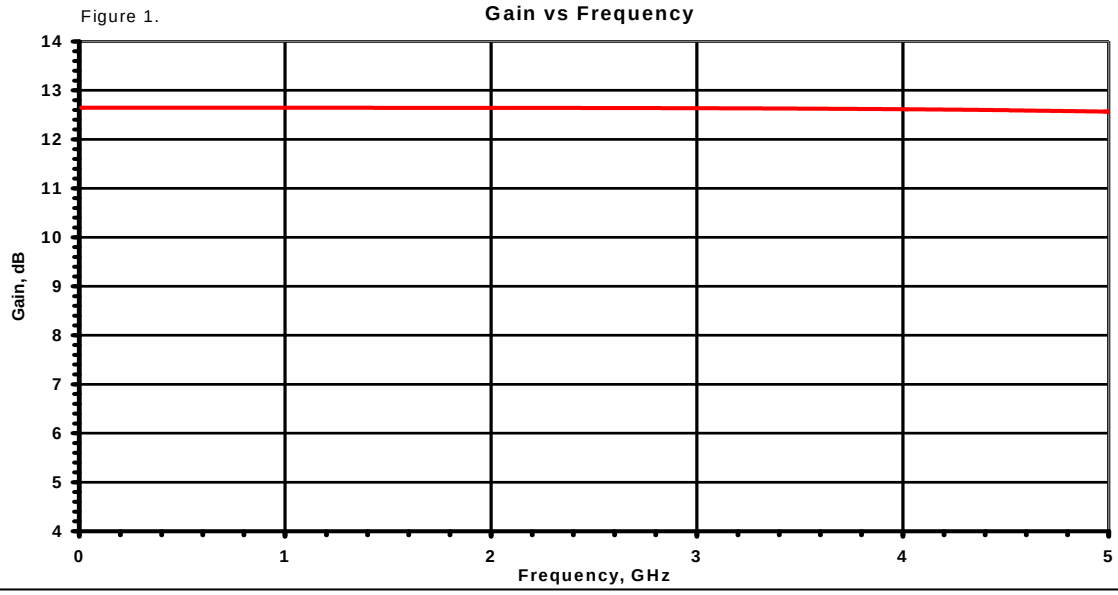


Figure 2. Return Loss vs Frequency

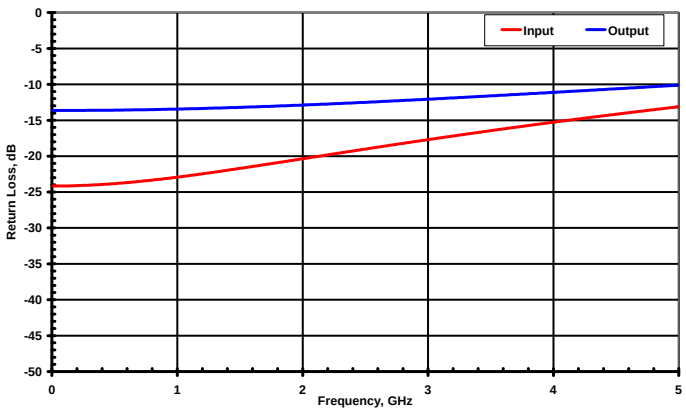


Figure 3. Output Power vs Frequency

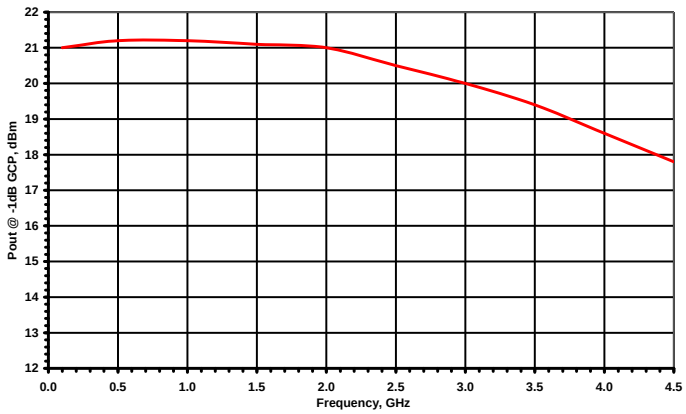


Figure 4. OIP3 vs Frequency

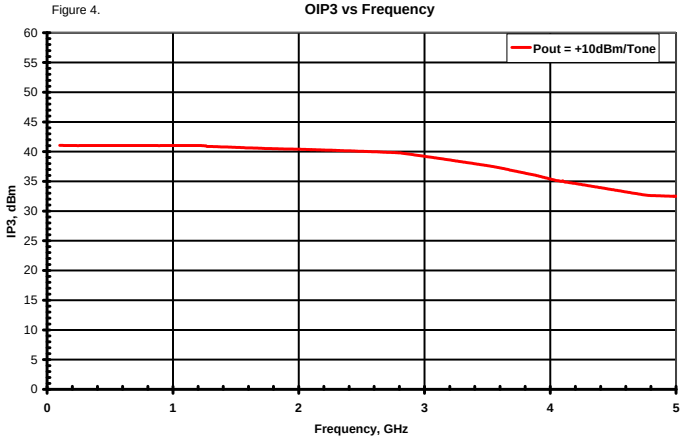


Figure 5. Group Delay vs Frequency

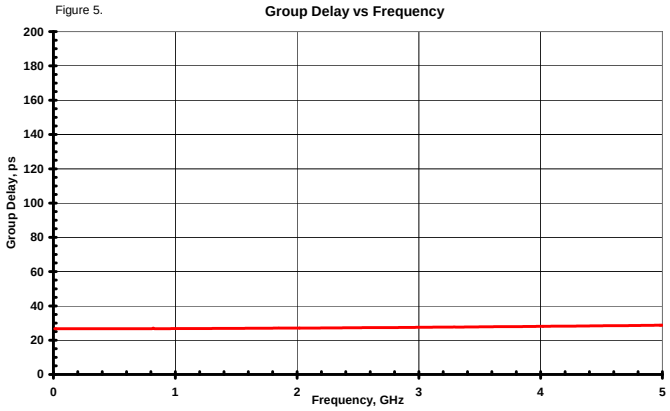
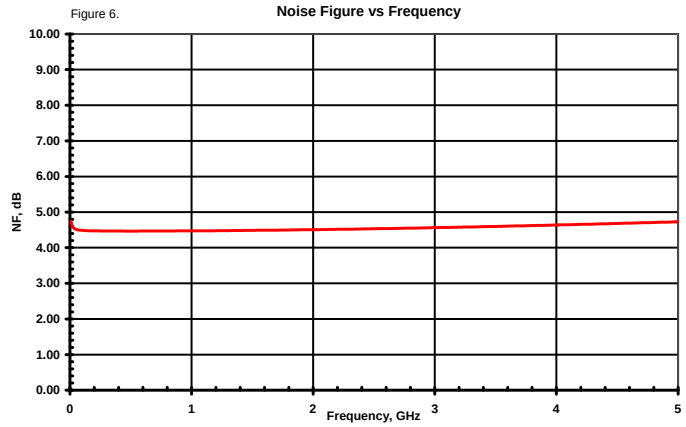


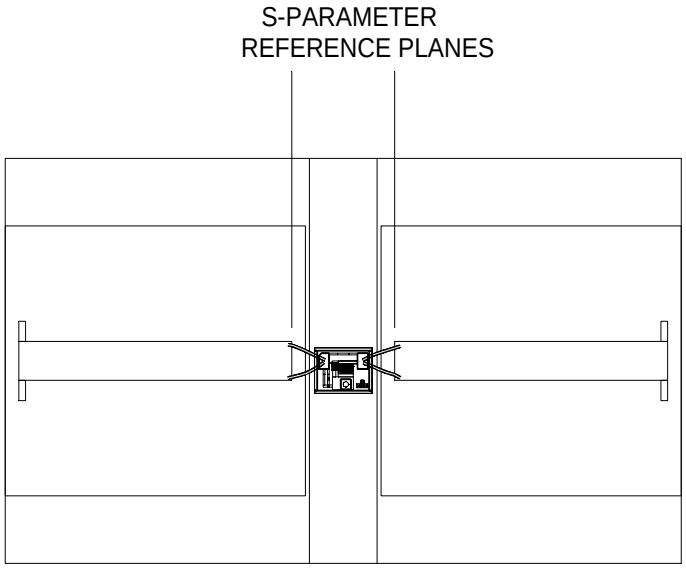
Figure 6. Noise Figure vs Frequency



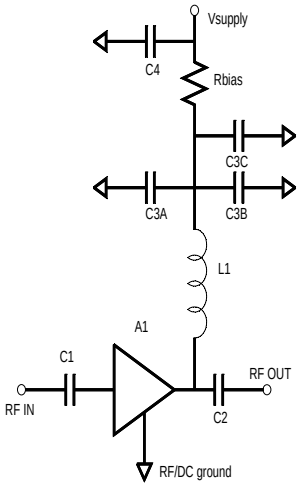
Absolute Maximum Ratings

Parameter	Rating
Case Temperature, Operating	-40 to +85 °C
Storage Temperature	-55 to +150 °C
Device Current	150mA
RF Input Power, continuous	+13 dBm
Junction Temperature	250 °C

Operation of this device above any of these parameters will cause permanent damage.



Test Circuit

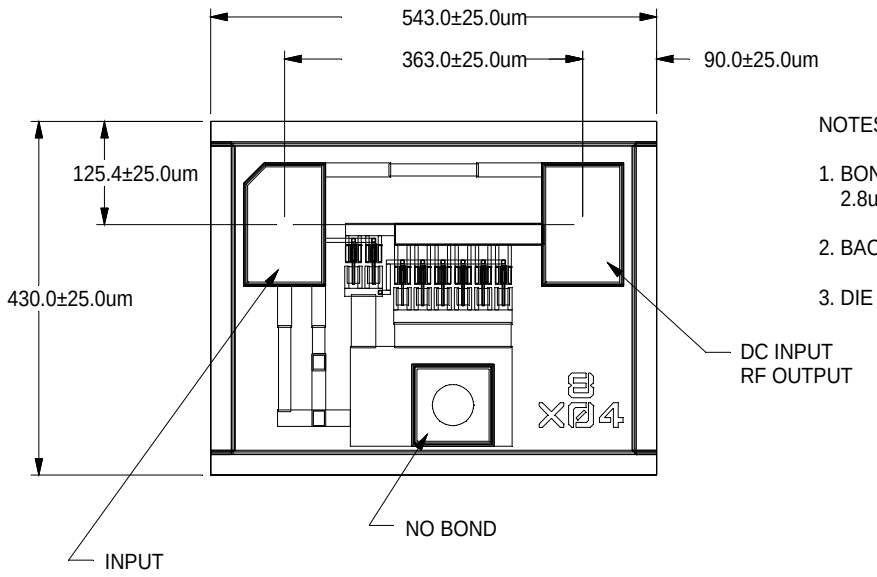


Application Schematic

Parts List: (Vsupply = 8.00Vdc)

Rbias	11 Ohms	00805 size
C1, C2	10nF	0402 ATC520L103KT16T
C3A	10pF	0603
C3B	220pF	0603
C3C	0.1uF	0603
C4	4.7uF	1210
L1	8uH	Coilcraft BCS-802JLC

Note that Rbias is required for DC current stability with temperature.



NOTES:

1. BONDPADS: 90UM x 140UM. 2.8um Au
2. BACKSIDE METAL Au 5um
3. DIE THICKNESS 100um NOMINAL

DIE OUTLINE